The Littoral and Sublittoral Polyplacophora of Diablo Cove and Vicinity, San Luis Obispo County, California

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(1 Text Figure)

INTRODUCTION

During the summer and fall of 1979 the author was afforded the opportunity to work with the mollusk collection of the Pacific Gas and Electric Department of Engineering Research Biological Laboratory at Diablo Canyon (Diablo Laboratory), San Luis Obispo County, California. The collection reflects mainly mollusks collected between the years 1968 to 1979, concentrating on Diablo Cove and vicinity, from the littoral zone to a depth of 10.7 m. It was quickly realized by the author that the area was rather unique and that the chiton fauna of the cove had not been adequately described in the literature. In addition to the lots examined in the above collection, the author was kindly allowed to collect within the littoral zone of Diablo Cove in otherwise restricted waters; sublittoral lots were provided by Lawrence "Bud" Laurent of the California Department of Fish and Game and by David Behrens of the Diablo Laboratory, to both of whom I give thanks. The collections of the California Department of Fish and Game and Lockheed, both at Diablo, were also examined. It is the purpose of this paper to present the species of littoral and sublittoral polyplacophoran mollusks encountered within this study along with their approximate littoral zonation, habitat, abundance, and sublittoral depth, and to present a listing, from the literature, of the chiton fauna reported within San Luis Obispo County.

SITE LOCALITY AND ECOLOGICAL NOTES

Diablo Cove is a well-protected indentation of the outer coast flanked to the north by Fields Cove and to the south by the Intake Cove of the Pacific Gas and Electric Nuclear Generating Station, just south of Point Buchon, at Latitude 35°12′35″N, Longitude 120°51′25″W (see Figure 1). The cove and vicinity offer a particularly unique opportunity for the study of littoral and sublittoral flora and fauna due to the virtually untouched nature of the

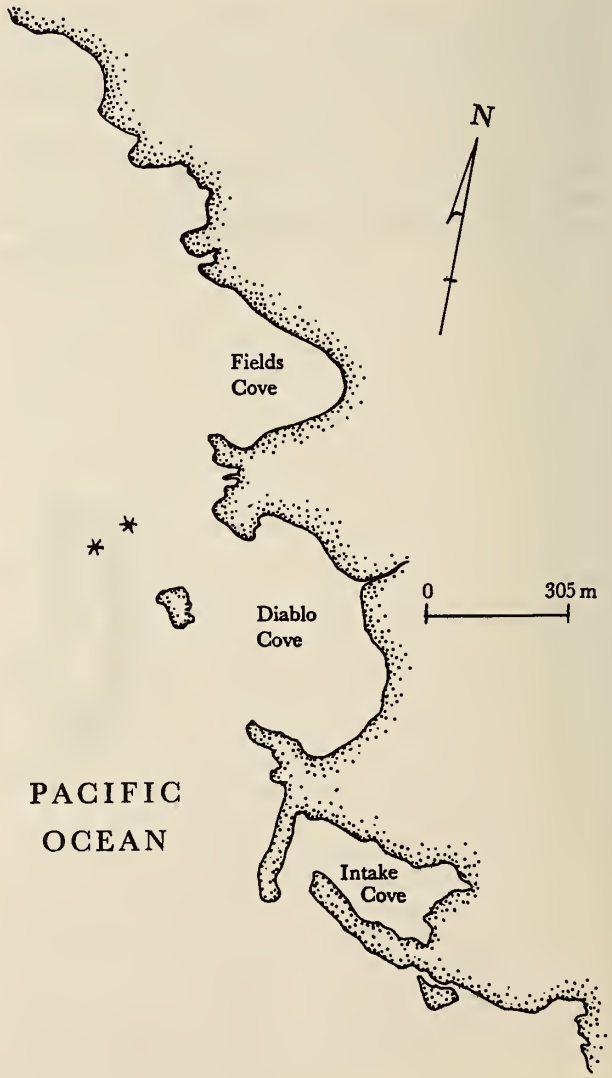

Figure 1

Diablo Cove and Vicinity, San Luis Obispo County, California

environment. The direct force of the Pacific is minimized due to the position of the area to the south of Point Buchon and to the protective nature of the surrounding rock forms.

A particularly good chiton habitat, the littoral area of Diablo Cove is abundant with manageable boulders set in a rock rubble bottom. The sublittoral environment is highly irregular with few extensive areas of sediment cover (North, 1966), again an ideal situation for chitons. The areas of sediment cover appear to be composed mainly of rock or shell rubble upon which have been found chitons in great abundance.

Diablo Cove was the only area in which the author collected; the data given for Fields Cove and the Intake Cove are solely from the reference collections examined.

TERMINOLOGY

The terminology used for zonation, habitat, and abundance is the same as that proposed in Putman (1981 a, b).

SYSTEMATIC ACCOUNT

Diablo Cove

Basiliochiton heathii (Pilsbry, 1898). Zone 4, under rock; common.

Callistochiton palmulatus Dall, 1878. Zone 4, under rock; uncommon.

Chaetopleura gemma Pilsbry, 1892. Zone 4, under rock; uncommon.

Cyanoplax dentiens dentiens (Gould, 1846).[1 2 3 5]

Cyanoplax hartwegii (Carpenter, 1855).[1 3 4 5]

Dendrochiton thamnoporus Berry, 1911.[1 3 4 5] At 5.8m, on stable rocky shelf; uncommon. Found in association with encrusting corallines.

Ischnochiton interstinctus (Gould, 1846). Zone 4, under rock; common. At 7.6m, on rock rubble; common to very common.

Ischnochiton regularis (Carpenter, 1855). Zone 4, under rock; uncommon.

Katharina tunicata (Wood, 1815). At 1.5 to 10.7m.[1 3 5]

Lepidochitona keepiana (Berry, 1948).[1 3 4 5]

Lepidopleurus rugatus (Pilsbry, 1892). Zone 4, under rock; common.

Lepidozona cooperi (Dall, 1878). Zone 4, under rock; common. At 7.6m on rock rubble; common.

Lepidozona mertensii (Middendorff, 1847). Zone 4, under rock; common. At 7.6m on rock rubble; common. At 1.5 to 10.7m.[1 3 5]

Lepidozona sinudentata (Pilsbry, 1892). At 7.6m on rock rubble; uncommon.

Mopalia ciliata (Sowerby, 1840).[1 2 3 4]

Mopalia hindsi hindsi (Reeve, 1847).[1 2 3 5]

Mopalia lignosa (Gould, 1846). Zone 4, under rock; uncommon.

Mopalia lowei Pilsbry, 1918.[1 3 4 5]

Mopalia muscosa (Gould, 1847).[1 2 3 5]

Nuttallina californica (Reeve, 1847).[1 3 4 5]

Placiphorella velata Dall, 1878.[1 3 4 5]

Stenoplax fallax (Pilsbry, 1892).[1 2 3 5]

Stenoplax heathiana Berry, 1946. Zone 4, under rock; common.

Tonicella lineata (Wood, 1815). Zone 4, under rock; common. At 1.5 to 10.7m.[3 5]

Fields Cove

Cryptochiton stelleri (Middendorff, 1847). Juvenile, 15mm (length).[1 2 3 5]

Cyanoplax dentiens dentiens (Gould, 1846).[1 3 4 5]

Cyanoplax hartwegii (Carpenter, 1855).[1 3 4 5]

Lepidozona mertensii (Middendorff, 1847).[1 3 4 5]

Stenoplax heathiana Berry, 1946.[1 3 4 5]

Intake Cove

Cyanoplax dentiens dentiens (Gould, 1846).[1 2 3 5]

Mopalia ciliata (Sowerby, 1840).[1 2 3 5]

Mopalia hindsi hindsi (Reeve, 1847).[1 2 3 5]

Mopalia lignosa (Gould, 1846).[1 2 3 5]

Mopalia muscosa (Gould, 1847).[1 2 3 5]

Tonicella lineata (Wood, 1815).[1 2 3 5]

DISCUSSION

Earlier faunal listings, although not as extensive as these, confirm or supplement the findings herein presented. In one of the first faunal listings of Diablo Cove (North, 1966), *Mopalia muscosa* (Gould, 1847) was noted to exist within the littoral zone with sublittoral species listed being *Cryptochiton stelleri* (Middendorff, 1847) at 6.1 to 12.2m (the original citations being in feet), *Ischnochiton mertensii* (Middendorff, 1847) (now *Lepidozona mertensii* (Middendorff, 1847)) at 6.1m, and *Ischnochiton radians* Pilsbry, 1892 (now *Ischnochiton interstinctus* (Gould, 1846)) at 6.1m, with no other chitons noted. North, Anderson, & Chapman (1974) add a second *Tonicella* species to the intertidal list-

[1] Occurrence data based solely on museum specimens; not confirmed in habitat by the author.

[2] Depth information not noted with museum specimens.

[3] Habitat information not noted with museum specimens.

[4] Depth information other than "intertidal" not recorded with museum specimens.

[5] Abundance information not recorded with museum specimens.

ing of Diablo Cove, *T. marmorea* (Fabricius, 1780). This addition is based on a single specimen found intertidally. The species is not known by the author to occur south of Washington state, nor has it been noted, to the author's knowledge, from the area of Diablo Cove since the publishing of the above report. For the preceding reasons and the fact that the specimen is absent from the collection at the Diablo Laboratory, the validity of the reference must be placed in doubt. Further listings in this study do, however, appear to be quite valid. These include, all from the intertidal zone, *Cyanoplax hartwegii* (Carpenter, 1855), *Katharina tunicata* (Wood, 1815), *Lepidochitona keepiana* (Berry, 1948), *Lepidozona cooperi* (Dall, 1878), *L. mertensii* (Middendorff, 1847), *L. sinudentatus* [sic] (Pilsbry, 1892), *Mopalia lowei* Pilsbry, 1918, *M. lignosa* (Gould, 1846), *Nuttallina californica* (Reeve, 1847), *Stenoplax heathiana* Berry, 1946, and *Tonicella lineata* (Wood, 1815). Most of the initial chiton laboratory identifications were made by Dr. James H. McLean of the Los Angeles Museum of Natural History, and all have been verified by the author.

Of the 47 species of polyplacophoran mollusks noted from the literature to possibly occur within the waters of San Luis Obispo County (PUTMAN, 1980, 1981 a, b), 25 can be directly attested to by the author to occur in the vicinity of Diablo Cove. A listing of the species not verified but of noted occurrence within the county, hence within the vicinity of Diablo Cove, would include (PUTMAN, 1980):

Acanthochitona avicula (Carpenter, 1864)
Basiliochiton flectens (Carpenter, 1863)
Callistochiton crassicostatus Pilsbry, 1892
Chaetopleura beanii (Carpenter, 1864)
Dendrochiton gothicus (Carpenter, 1863)
Deshayesiella (Oldroydia) percrassa (Dall, 1894)
Ischnochiton albus (Linnaeus, 1767)
Lepidopleurus nexus (Carpenter, 1864)
Lepidopleurus oldroydi Dall, 1919
Lepidozona pectinulata (Pilsbry, 1892)
Lepidozona retiporosa (Carpenter, 1864)
Lepidozona scabricostata (Carpenter, 1864)
Lepidozona serrata (Carpenter, 1864)
Lepidozona willetti (Berry, 1917)
Mopalia acuta (Carpenter, 1855)
Mopalia imporcata Carpenter, 1864
Mopalia porifera Pilsbry, 1892
Placiphorella stimpsoni (Gould, 1859)
Tonicella saccharina Dall, 1878

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